AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A method for assigning a mobile Internet protocol (IP) address in ~~an~~ first access node of a mobile communication system having the mobile IP address, the method comprising the steps of:

assigning a first mobile IpPv6 ~~(Mobile IPv6)~~ address available in the first access node to a first mobile node upon receiving a request for assignment of the first mobile IpPv6 ~~(Mobile IPv6)~~ address from ~~a~~ the first mobile node;

assigning ~~a second~~ first mobile IpPv4 ~~(Mobile IPv4)~~ address to the first mobile node until expiration of a predetermined time, upon receiving a request for assignment of the ~~second~~ first mobile IpPv4 address ~~(Mobile IPv4)~~ from ~~a~~ the first mobile node ~~which was assigned the first mobile Ip address~~; ~~and~~

assigning ~~a fifth~~ third mobile IpPv6 ~~(Mobile Ipv6)~~ address to a second mobile node when ~~a~~ the second mobile node that was assigned ~~a third~~ second mobile IpPv6 ~~(Mobile IPv6)~~ address and ~~a fourth~~ second mobile IpPv4 ~~(Mobile IPv4)~~ address has moved from ~~another~~ a second access node to the first access node; and

transmitting a time extension message for the second mobile IPv4 address to the second access node when the time extension message is received from the second mobile node.

2. (Currently Amended) The method of claim 1, wherein ~~the~~ a mobile node defines an access node that ~~is~~ initially assign~~ed~~ a Mobile IP address from the mobile communication system, as a home network.

3. (Cancelled)

4. (Currently Amended) The method of claim ~~1~~ 2, further comprising the step of receiving at the first access node ~~an~~ time extension message for ~~a~~ the second Mobile IPv4 address from the ~~another~~ second access node.

5. (Currently Amended) The method of claim 1, further comprising the step of, upon receiving a message requesting the ~~second~~ first mobile IPv4 ~~(Mobile IPv4)~~ address from the first mobile node, extracting an available address from a ~~second~~ mobile IPv4 ~~(Mobile IPv4)~~ pool and assigning the extracted address to the first mobile node as the ~~second~~ first mobile IPv4 ~~(Mobile IPv4)~~ address.

6. (Currently Amended) The method of claim 5, wherein when assigning the ~~second~~ first mobile IPv4 ~~(Mobile IPv4)~~ address, the first access node drives a timer for withdrawing the ~~second~~ first mobile IPv4 ~~(Mobile IPv4)~~ address and assigns the ~~second~~ first mobile IPv4 ~~(Mobile IPv4)~~ address to the first mobile ~~terminal~~ node until expiration of the timer.

7. (Currently Amended) The method of claim ~~5~~ 6, further comprising the step of resetting ~~a~~ the timer for withdrawing the ~~second~~ first mobile IPv4 ~~(Mobile IPv4)~~ address when ~~an~~ time extension request signal for the ~~second~~ first mobile IPv4 ~~(Mobile IPv4)~~ address is received from the first mobile node, which was assigned the ~~second~~ first mobile IPv4 ~~(Mobile IPv4)~~ address from the first access node.

8. (Currently Amended) An apparatus for assigning a mobile Internet protocol (IP) address in ~~an~~ first access node of a mobile communication system having the mobile IP address, the apparatus comprising:

means for assigning a first mobile IpPv6 ~~(Mobile IPv6)~~ address available in the first access node to a first mobile node upon receiving a request for assignment of the first mobile IpPv6 ~~(Mobile IPv6)~~ address from ~~a~~ the first mobile node;

means for assigning a ~~second~~ first mobile IpPv4 ~~(Mobile IPv4)~~ address to the first mobile node until expiration of a predetermined time, upon receiving a request for assignment of the ~~second~~ first mobile IpPv4 address ~~(Mobile Ipv4)~~ from ~~a~~ the first mobile node ~~which was assigned the first mobile IP address; and~~

means for assigning a ~~fifth~~ third mobile IpPv6 ~~(Mobile Ipv6)~~ address to a second mobile node when ~~a~~ the second mobile node that was assigned a ~~third~~ second mobile IpPv6

~~(Mobile IPv6)~~ address and a ~~fourth~~ second mobile IpPv4 ~~(Mobile IPv4)~~ address has moved from ~~another~~ a second access node to the first access node; and

means for transmitting a time extension message for the second mobile IPv4 address to the second access node when the time extension message is received from the second mobile node.

9. (Currently Amended) The apparatus of claim 8, wherein ~~the~~ a mobile node defines an access node that ~~is~~ initially assign~~sed~~ a Mobile IP address from the mobile communication system, as a home network.

10. (Cancelled)

11. (Currently Amended) The apparatus of claim 8, further comprising means for receiving at the first access node a~~n~~ time extension message for ~~a~~ the second Mobile IPv4 address from the ~~another~~ second access node.

12. (Currently Amended) The apparatus of claim 8, further comprising means for, upon receiving a message requesting the ~~second~~ first mobile IPv4 ~~(Mobile IPv4)~~ address from the first mobile node, extracting an available address from a ~~second~~ mobile IPv4 ~~(Mobile IPv4)~~ pool and assigning the extracted address to the first mobile node as the ~~second~~ first mobile IPv4 ~~(Mobile IPv4)~~ address.

13. (Currently Amended) The apparatus of claim 12, wherein when assigning the ~~second~~ first mobile IPv4 ~~(Mobile IPv4)~~ address, the first access node drives a timer for withdrawing the ~~second~~ first mobile IPv4 ~~(Mobile IPv4)~~ address and assigns the ~~second~~ first mobile IPv4 ~~(Mobile IPv4)~~ address to the first mobile ~~terminal~~ node until expiration of the timer.

14. (Currently Amended) The apparatus of claim ~~12~~ 13, further comprising means for resetting ~~a~~ the timer for withdrawing the ~~second~~ first mobile IPv4 ~~(Mobile IPv4)~~ address

when ~~an~~ a time extension request signal for the ~~second~~ first mobile IPv4 ~~(Mobile IPv4)~~ address is received from the first mobile node, which was assigned the ~~second~~ first mobile IPv4 ~~(Mobile IPv4)~~ address from the first access node.

15. (Currently Amended) A method for transmitting data between a first mobile communication network and a second mobile communication network in a border router of a mobile communication system utilizing a mobile Internet protocol (IP) address, the method comprising the steps of:

receiving a first mobile IpPv6 ~~(Mobile IPv6)~~ address and a ~~second~~ first mobile IpPv4 ~~(Mobile IPv4)~~ address from a mobile node;

storing the ~~received~~ first mobile IpPv6 ~~(Mobile IPv6)~~ address and the ~~second~~ first mobile IpPv4 ~~(Mobile IPv4)~~ address;

updating and storing the first ~~a third~~ mobile IPv6 address to a second mobile IPv6 address ~~being one of (Mobile IPv6) and (Mobile IPv4)~~ when the first mobile IPv6 address and the second mobile IPv6 address are included in a location update message ~~when the location update message is~~ received from the mobile node; and

transmitting a packet using the stored mobile IP addresses when packet data transmitted from ~~a~~ the mobile node belonging to the first mobile communication network to the second mobile communication network is received.

16. (Currently Amended) The method of claim 15, wherein the first mobile communication network performs communication using the first mobile IPv6 ~~(Mobile IPv6)~~ address.

17. (Currently Amended) The method of claim 15, wherein the second mobile communication network performs communication using the ~~second~~ first mobile IPv4 ~~(Mobile IPv4)~~ address.

18. (Original) The method of claim 15, further comprising the steps of:

storing tunneling information in an IP mapping table upon receiving the tunneling information from each mobile node; and

transmitting packet data by tunneling based on the tunneling information.

19. (Currently Amended) An apparatus for transmitting data between a first mobile communication network and a second mobile communication network in a border router of a mobile communication system utilizing a mobile Internet protocol (IP) address, the apparatus comprising:

means for receiving a first mobile IPv6 ~~(Mobile IPv6)~~ address and a ~~second~~ first mobile IPv4 ~~(Mobile IPv4)~~ address from a mobile node;

means for storing the ~~received~~ first mobile IPv6 ~~(Mobile IPv6)~~ address and ~~second~~ the first mobile IPv4 ~~(Mobile IPv4)~~ address;

means for updating and storing ~~a third~~ the first mobile IPv6 address to a second mobile IPv6 address ~~being one of (Mobile IPv6) and (Mobile IPv4)~~ when the first mobile IPv6 address and the second IPv6 address are included in a location update message ~~when the location update message is~~ received from the mobile node; and

means for transmitting a packet using the stored mobile IP addresses when packet data transmitted from ~~a~~ the mobile node belonging to the first mobile communication network to the second mobile communication network is received.

20. (Currently Amended) The apparatus of claim 19, wherein the first mobile communication network performs communication using the first mobile IPv6 ~~(Mobile IPv6)~~ address.

21. (Currently Amended) The apparatus of claim 19, wherein the second mobile communication network performs communication using the ~~second~~ first mobile IPv4 ~~(Mobile IPv4)~~ address.

22. (Original) The apparatus of claim 19, further comprising:

means for storing tunneling information in an IP mapping table upon receiving the tunneling information from each mobile node; and

means for transmitting packet data by tunneling based on the tunneling information.

23. (Currently Amended) A method for transmitting/receiving data between a first mobile communication network and a second mobile communication network in a mobile node of a mobile communication system utilizing a mobile Internet protocol (IP) address, the method comprising the steps of:

receiving a first mobile IPv6 ~~(Mobile IPv6)~~ address assigned from the first mobile communication network;

receiving a ~~second~~ first mobile IPv4 ~~(Mobile IPv4)~~ address assigned by sending a request for the ~~second~~ first mobile IPv4 ~~(Mobile IPv4)~~ address to an first access node when communication with the second mobile communication network is required;

transmitting the ~~assigned~~ first mobile IPv6 ~~(Mobile IPv6)~~ address and ~~second~~ the first mobile IPv4 ~~(Mobile IPv4)~~ address to a border router; and

receiving and assigning a ~~third~~ second mobile IPv6 ~~(Mobile IPv6)~~ address, and transmitting the ~~assigned third~~ first mobile IPv6 address and the second mobile IPv6 address to the border router when the mobile node moves to ~~another~~ a second access node in the first mobile communication network.

24. (Original) The method of claim 23, further comprising the step of transmitting data to the border router when the mobile node desires to transmit packet data to the second mobile communication network.

25. (Currently Amended) The method of claim 23, further comprising the steps of:

determining whether the mobile node was assigned the ~~third~~ second mobile IPv6 ~~(Mobile IPv6)~~ address, when one of the assigned ~~second~~ first mobile IPv4 ~~(Mobile IPv4)~~ address and a ~~fourth~~ second mobile IPv4 ~~(Mobile IPv4)~~ address is extended; and

generating extension information of the ~~second~~ first mobile IPv4 ~~(Mobile IPv4)~~ address if it is determined that the mobile node is not assigned the ~~third~~ second mobile IPv6

~~(Mobile IPv6)~~ address, and generating extension information of the ~~second~~ first mobile IPv4 ~~(Mobile IPv4)~~ address, including information on a network from which the mobile node is assigned the first mobile IPv6 ~~(Mobile IPv6)~~ address, information on the ~~second~~ first mobile IPv4 ~~(Mobile IPv4)~~ address and information on the second ~~third~~ mobile IPv6 ~~(Mobile IPv6)~~ address, if it is determined that the mobile node is assigned the ~~third~~ second mobile IPv6 ~~(Mobile IPv6)~~ address ~~is assigned~~.

26. (Currently Amended) The method of claim 23, further comprising the step of transmitting the ~~third~~ second mobile IPv6 ~~(Mobile IPv6)~~ address and ~~one of~~ the first mobile IPv6 ~~(Mobile IPv6)~~ address ~~and the second mobile IP (Mobile IPv4) address~~ to the border router, when the ~~third~~ second mobile IPv6 ~~(Mobile IPv6)~~ address is received from the second access node.

27. (Currently Amended) An apparatus for transmitting/receiving data between a first mobile communication network and a second mobile communication network in a mobile node of a mobile communication system utilizing a mobile Internet protocol (IP) address, the apparatus comprising:

means for receiving a first mobile IPv6 ~~(Mobile IPv6)~~ address assigned from the first mobile communication network;

means for receiving a ~~second~~ first mobile IPv4 ~~(Mobile IPv4)~~ address assigned by sending a request for the ~~second~~ first mobile IPv4 ~~(Mobile IPv4)~~ address to ~~an~~ first access node when communication with the second mobile communication network is required;

means for transmitting the ~~assigned~~ first mobile IPv6 ~~(Mobile IPv6)~~ address and ~~second~~ the first mobile IPv4 ~~(Mobile IPv4)~~ address to a border router; and

means for receiving and assigning a ~~third~~ second mobile IPv6 ~~(Mobile IPv6)~~ address and transmitting the ~~assigned third~~ first mobile IPv6 address and the second mobile IPv6 address to the border router, when the mobile node moves to ~~another~~ a second access node in the first mobile communication network.

28. (Original) The apparatus of claim 27, further comprising means for transmitting data to the border router when the mobile node desires to transmit packet data to the second mobile communication network.

29. (Currently Amended) The apparatus of claim 27, further comprising:

means for determining whether the mobile node was assigned the ~~third~~ second mobile IPv6 ~~(Mobile IPv6)~~ address, when one of the ~~assigned second~~ first mobile IPv4 ~~(Mobile IPv4)~~ address and a ~~fourth~~ second mobile IPv4 ~~(Mobile IPv4)~~ address is extended; and

means for generating extension information of the ~~second~~ first mobile IPv4 ~~(Mobile IPv4)~~ address if it is determined that the mobile node is not assigned the ~~third~~ second mobile IPv6 ~~(Mobile IPv6)~~ address, and generating extension information of the ~~second~~ first mobile IPv4 ~~(Mobile IPv4)~~ address, including information on a network from which the mobile node is assigned the first mobile IPv6 ~~(Mobile IPv6)~~ address, information on the ~~second~~ first mobile IPv4 ~~(Mobile IPv4)~~ address and information on the second ~~third~~ mobile IPv6 ~~(Mobile IPv6)~~ address, if it is determined that the mobile node is assigned the ~~third~~ second mobile IPv6 ~~(Mobile IPv6)~~ address ~~is assigned~~.

30. (Currently Amended) The apparatus of claim 27, further comprising means for transmitting the ~~third~~ second mobile IP ~~(Mobile IP~~v6) address and ~~one of~~ the first mobile IPv6 ~~(Mobile IPv6)~~ address ~~and the second mobile IP (Mobile IPv4) address~~ to the border router, when the ~~third~~ second mobile IPv6 ~~(Mobile IPv6)~~ address is received from the second access node.